

A. A. Kuklin ^{a)}, E. V. Vasilyeva ^{a)}^{a)} Institute of Economics, Ural Branch of the RAS

THE WELFARE AND PUBLIC HEALTH OF THE POPULATION OF RUSSIA: ADAPTATION TO ECONOMIC VOLATILITY¹

The article presents the results of a research into the interrelation between of welfare and the public health of the Russian population in the context of economic volatility. The authors review the indicators used both in Russian and international practice for the assessment of the public sentiments dynamics. The concept of “socio-psychological potential of a region” is shown to be the indicator of the public health. Based on this concept, the pattern of the potential has been formed. It has been developed a methodology for the assessment of the socio-psychological potential of a region, which is based on the central idea of the integrated estimation of the potential of a region as a whole and also from the point of its separate components. The article provides the assessment of the potential of the constituent entities of the Russian Federation. The authors determine the nature and strength of the relationships between the welfare indicators and the level of the socio-psychological potential of the subjects of the Russian Federation based on the construction of correlation matrices, and besides they identify regional patterns and trends.

Keywords: welfare, population, public health, socio-psychological potential, the regions of Russia

Population is its country's important asset and is the basis for the economic growth. Periods of economic instability make a significant impact on the well-being of the population. N. Rimashevskaya believes that the reforms of the 1990s impaired the social / demographic development due to the significant deterioration of the habitat and the living standard, social tension and instability, insurmountable difficulties in the adaptation to the transition to market [1]. Some researchers tried to explain the negative effects of the social changes on the health of the population by the deformations which emerged in the socio-economic structures of the communities [2]. W. Cockerham, on the contrary, insists that the reason of the bad health of the population is the traditional lifestyle of the population of post-communist countries, which contradicts the new economic market relations [3]. However, there are no doubts that the societies undergoing fast socio-economic changes experience the collapse of the sphere of meanings and the loss of the will for life. Inability to adapt to new conditions makes the population uncertain about tomorrow, and they do not see a strategy for the proper behavior in the new circumstances. The social stress caused by the sharp decline of the quality of life of population is the cause of the sharp rise of mortality of the population of Russia, the reduction of birthrate and the development of a severe demographic crisis [4, 5].

The economic consequences of the crises are smoothed out much faster than the consequences of the social maladjustment of the population, which is reflected in the suicide rate of the population [6-10]. In the period of 1990–1995 the number of suicides in Russia increased 1,6 times (Fig. 1). Despite the positive downward trend since the early 2000s, Russia's average rate of mortality from suicides exceeds the upper critical limit established by WHO (20 incidents per 100,000 people).

Moreover, both the dynamics and the rate of suicides depend on the region of Russia. In 2013, the mortality from deliberately self-inflicted injuries in Russia ranged from 5.5 per 100,000 people in the North Caucasus Federal District to 31.4 in the Siberian Federal District. Such sharp regional differentiation in the social and psychological state of the population results in unequal adaptation potential of the population of the region in respect of the socio-economic and political transformations, and ultimately determines the welfare of the population of the Russian regions.

In her characteristic of the level of well-being of the Russian society, N. Rimashevskaya noted that the social disorder of the population is come out in the disastrous increase of abnormal and asocial behavior: alcoholism; drug addiction, especially among youth, criminalization of social environment; sharp increase in the number of suicides [11]. To prove or disprove this thesis, it is necessary to evaluate the dependence between the welfare of the population in the region and the public health in the context

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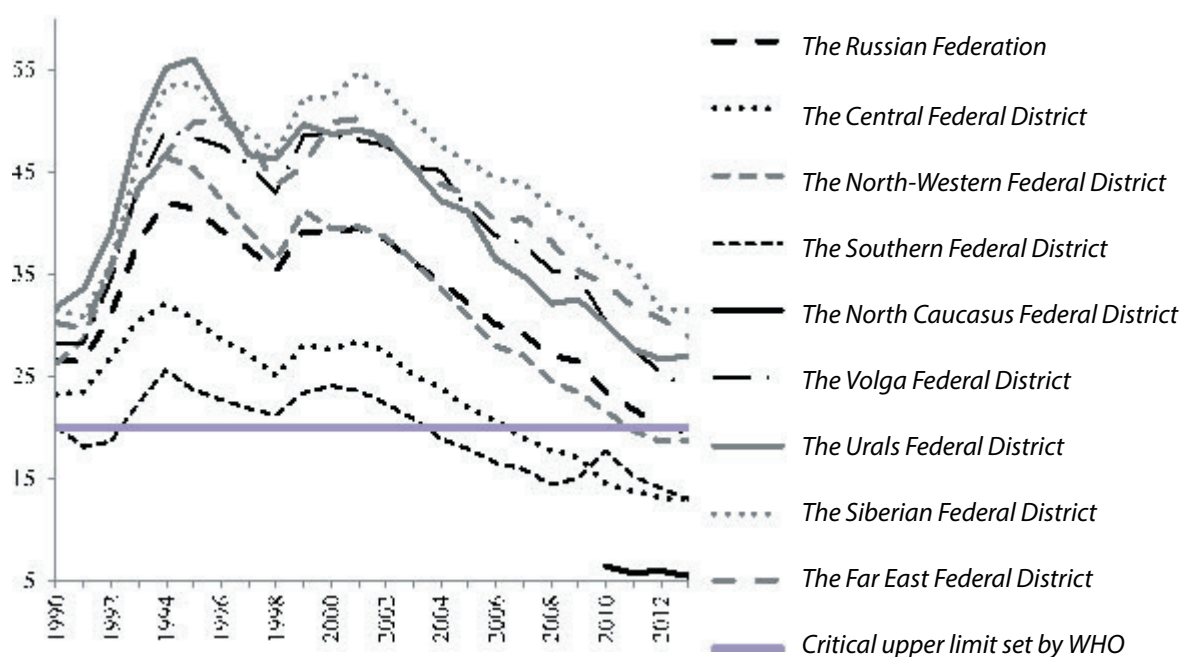


Fig. 1. The dynamics of mortality from deliberately self-inflicted injuries (suicides) in the Federal Districts of the Russian Federation in 1990–2013, people per 100,000 of population

of economic instability. The article sets and solves a task of methodological and methodological nature: to formalize the ratings of the socio-psychological potential of the regions of Russia as an indicator of the public health.

Review of Literature

In many of countries there are commonly used general indicators of the public sentiments development, which gives an opportunity to assess the actual dynamics of the state of the society and express the influence of the popular mentality on the development of the country. Such indicators include Consumer Confidence Index, Consumer Sentiment Index, and Consumer Comfort Index. The methodology of the construction of such indicators is based on the premise that the personal opinions of individuals about different aspects of their own life, their attitude towards economic and social events which occur around them and in which they participate, determine the generalized assessment of the perception of the socio-economic and political reality. This comprehensive evaluation, in its turn, is the core determinant of specific actions of private individuals. Taken together, they define socioeconomic behavior of all the population in its different functions: that of the end consumer, an investor, an employee. The general nature of these assessments and, which is even more important, the trends of their change, determine how favorable the present situation in the society is in terms of the further socio-economic and political development of the country.

In Russia, the analogue of the Consumer Sentiment Index is the Consumer Attitudes Index. Our experience of constructing and analyzing the index has shown a close correlation between the political, economic, and public evaluations and opinions of the respondents, in particular, the coincidence of the dynamics of assessment of public/political events and the establishment of consumer attitude in the society [12]. This circumstance demonstrated that it was possible to construct the final indicator of public feelings, which duly took into consideration the role of social and political factors in its formation. For this purpose, the All-Russian Public Opinion Research Center has developed the Index of Social Sentiment [13]. Many indices were developed in order to estimate the social welfare and the outlook of the future of the population on the basis of opinion polls [14–18]. The results of opinion polls are certainly useful, but if we want to receive representative results with the consideration of the regional features, such polls have to be performed regularly for each subject of the Russian Federation. To avoid the distortion in the representation of the reality, a researcher can only use opinion polls to evaluate the state of the population in a society that reached a certain level of development. As L. Belyaeva notes, this level becomes possible in the presence of several prerequisites:

— stable social / political situation has established in the country, and there is sustainable economic growth;

- the country has a significant share of middle class that includes the significant talent of the nation, and the welfare of the middle class does not raise any doubts;
- the primary material needs are satisfied to the extent when a person proceeds to the stage of satisfying “the exquisite, modified personal needs”, and the spiritual and aesthetic needs are given the top priority;
- the person who is evaluating the quality of life has some experience of using alternative options. Research has shown that the fewer alternatives a family or an individual have for comparison, the less they appreciate their actual quality of life [19].

The contemporary Russian reality does not comply with any of the conditions above. Therefore, the research into the socio-psychological potential of our country at the present stage must be based on an approach that can conventionally be considered objective (i.e., based on the data of the statistic reporting). Based on this approach, a composite index of macropsychological state of a society has been developed, which combines two secondary indices — the index of the psychological stability of a society and the index of its socio-psychological well-being, each of these, in its turn, integrating three primary indices [20-21]. The values that we selected as the primary indicators were, first, relevant for the macro-psychological state of the society and expressing this state; second, evaluated via the primary indexes which are provided in statistical books (number of suicides, prevalence of mental disorders, death from the diseases of the nervous system and the sensory organs, number of murders, divorce rate, prevalence of social orphanhood). Such an approach does not take into consideration the full range of the spheres of activity of the population of the region, which hinders comprehensive analysis of the state of the population of the Russia's regions. M. Morev and V. Popova tried to adapt it and complement with a number of other indicators boiled down to the selection of more available statistical information for the regional level [22-23]. In this connection, further research is required in this field to get a reliable representation of the socio-psychological potential of a region.

The Methodology of the Research

In the general sense, the potential of a region is understood as the possibilities of its development in the situation when all the package of its territorial resources, features of the existing and expected structure of its economy, geographical location and other parameters are used to their full potential in order to improve the quality of life of the population of the region [24]. The assessment of the potential of a region is performed in order to determine the number and quality of available resources, reveal strong and weak points of the region in respect of the availability of resources required for its development, and serves as a tool in managerial decision-making on the most efficient use of the available potential and the activation of the possible sources of competitiveness growth of the region. *The socio-psychological potential of a region* is understood as the aggregate of the abilities of the region's population to adapt to the impact of the external factors, which determines the potential

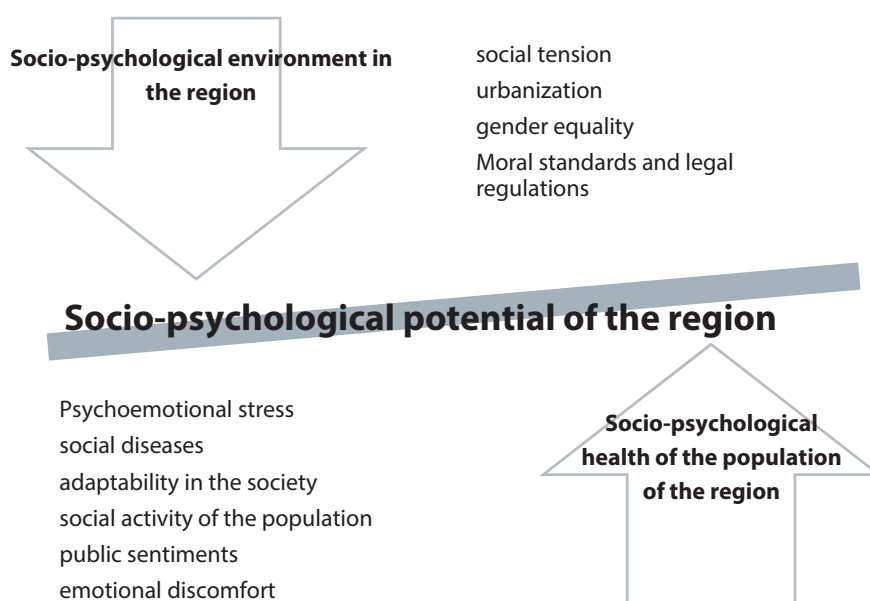


Fig. 2. The pattern of the social/psychological potential of a region

development of this society and the implementation of goals of socio-economic development as a factor that contributes to the improvement of the quality of life of the population of the region.

Among the methodological problems related to the organization of analytical work in the sphere of assessment and analysis of the socio-psychological potential of a region, it is necessary to mention the importance of its structurization. From this point of view, the socio-psychological potential of the population of the region has to be evaluated at two levels – that of socio-psychological environment and of the socio-psychological health, which are inherently interrelated but have independent designations (Fig. 2).

The socio-psychological environment of a region is the conditions established in the region for the development and realization of its potential, which determines the social diseases and the social adaptation of the population. The socio-psychological environment of a region is formed under the influence of social tension, urbanization, level of gender equality and moral and legal standards that have established in that region.

The degree of success in the population's adaptation to the socio-psychological environment of the region is reflected in the state of public health. The concept of public health is not limited only to the statement of the absence of diseases and ailments. According to the definition of the WHO, "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" [25]. *The socio-psychological health of the population of a region* is the state of the population of the region determined by the ability of the population to counteract stress factors and adapt in the society; social activity of the population; their awareness of being a part of a specific culture and the acceptance of its system of values (its paradigm) and the choice of a lifestyle.

Due to the multi-dimensional character and the subjectivity of the concept of socio-psychological potential of a region, the problem is not only of methodological, but also of procedural nature, and involves formalization of the presented pattern of the potential. To solve this problem, the methodology of the assessment of socio-psychological potential of a region has been developed.

The methodology of the assessment of the socio-psychological potential of a region

The methodology of the assessment of socio-psychological potential of a region is based on the calculation of an index. Its content consists of the aggregation of the available information on the components of the socio-psychological potential of a region, which is then used for integrated

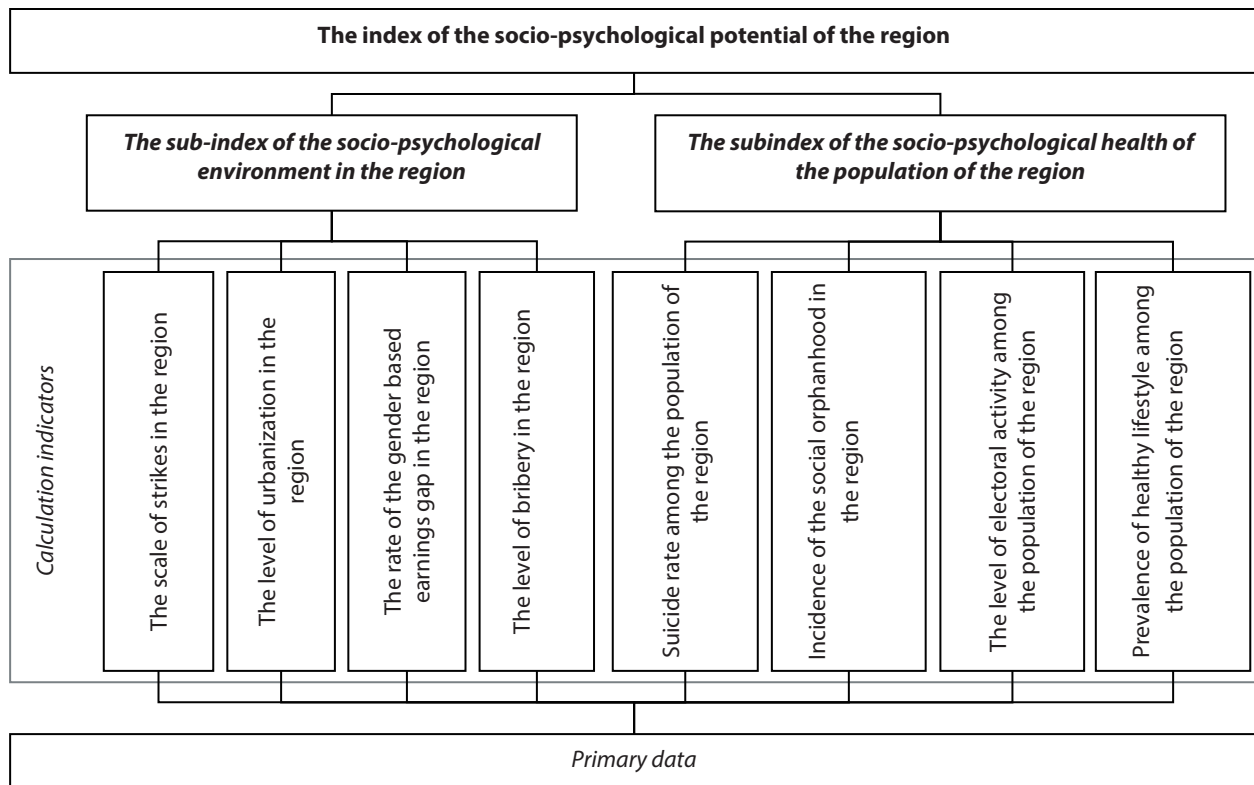


Fig. 3. The hierarchical model of the integral index of the socio-psychological potential of the region The hierarchical model of the integral index of the socio-psychological potential of the region

quantitative assessment of such region. The suggested hierarchical model of the integral index of socio-psychological potential of a region is presented in fig. 3.

Integrated quantitative assessment, which is represented in the form of the index, is performed in five successive stages.

1. Collection of primary data and data processing. The evaluation is based on the indicators monitored by the Federal State Statistics Service, the Ministry of Home Affairs of the Russian Federation, the Federal Research Institute for Health Organization and Informatics of the Ministry of Health of the Russian Federation, and the Central Election Commission of the Russian Federation.

2. Normalizing of the calculation indicators. As the index of the socio-psychological potential of a region is heterogeneous in its composition, i.e., it contains “positive” and “negative” indicators, the calculation values of indicators we received have to be transformed in the way that the dependence between a value of an index and the respective indicator was represented conventionally as a positive or negative factor. It means that the higher value the positive indicator has, the higher is the index, and vice versa, the higher value the negative indicator has, the lower the index is. Therefore, if the indicator is conditionally positive, its calculation value is obtained from the formula:

$$I_{ij} = \frac{X_{ij}^P - X_{i_min}}{X_{i_max} - X_{i_min}}, \quad (1)$$

where I_{ij} is the calculation value of the i -th indicator of the j -th region, in arbitrary units, X_{ij}^P is the meaning of the i -th “positive” indicator of the j -th region, denominated units, X_{i_min} is the minimum value of the i -th indicator among all the regions, denominated units, and X_{i_max} is the maximum value of the i -th indicator among all the regions, denominated units.

In the opposite case, the value of the indicator is calculated by the formula:

$$I_{ij} = 1 - \frac{X_{ij}^N - X_{i_min}}{X_{i_max} - X_{i_min}}, \quad (2)$$

where X_{ij}^N is the value of the i -th “negative” indicator of the j -th region, denominated units

3. Determination of the weighting coefficients The indicators of the potential of a region are included in the model with certain weights characterizing their role in the formation of the potential. The weighting coefficients of indicators are calculated on basis of expert appraisal pursuant to the method of hierarchy analysis.

4. Calculation of the sub-indices and the integral index All the indicators and the weighting coefficients are aggregated into the integral index, which is calculated by the following formula:

$$I = \sum_{i=1}^m w_i I_{ij}, \quad (3)$$

where I is the integrative value of the index of the socio-psychological potential of a region, in arbitrary units; w_i is the weighting factor of the i -th indicator; m is the number of indicators of the socio-psychological potential of the region.

5. The ranking of the regions based on the index value. The index ranges from 0 to 1. The maximum value of the integral index is characterized by the full use of socio-psychological potential of the region, while the rest of the values of the index are classified into six levels according to their potential.

The analysis of the relationships between the level of public health and the welfare of the population of the regions of Russia

The methodology developed in the framework of the research was tested across the 83 subjects of the Russian Federation in 2013. The results of the assessment have showed that none of the constituent territories of the Russian Federation realized its full potential (Fig. 4). The republics of the Northern Caucasus (Chechnya, Ingushetia, Dagestan, Karachai-Circassian Republics) have a satisfactory level of potential. Almost all the entities included in this group possess a relatively favourable socio-psychological environment, as well as relatively high socio-psychological health of the population. The exceptions were the Republics of Dagestan and Karachay-Cherkessia, where a high level of a gender-related salary gap has been observed. The majority of the constituent territories of the Russian Federation (85.5 %) have a medium level of socio-psychological potential. The Perm Territory, the Trans-Baikal Territory, the Republic of Karelia, the Irkutsk, Kaluga, Chelyabinsk, and Omsk Regions

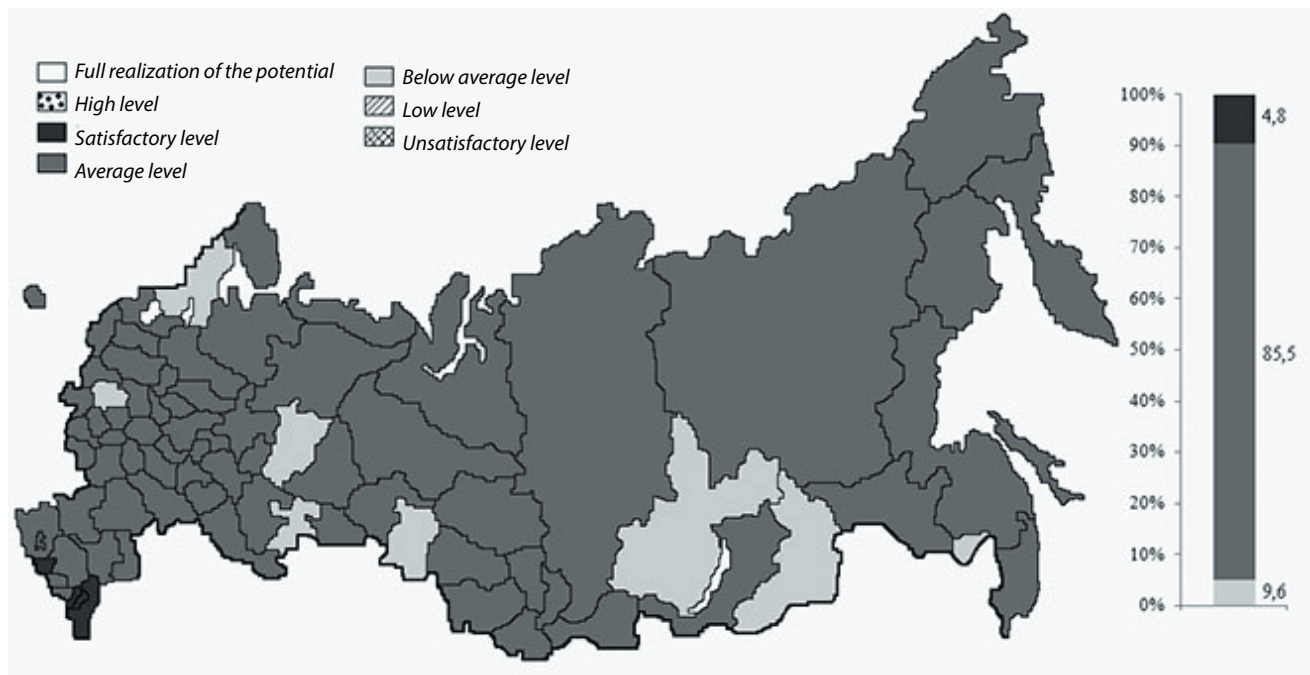


Fig. 4. The integral index of the socio-psychological potential and the distribution of the constituent territories of the Russian Federation according to its value

and the Jewish Autonomous Region have the last positions in the rating, and the level of their potential is lower than the average. The factor that had the most significant impact upon the assessment of the potential of the constituent territories of the Russian Federation was the unsatisfactory socio-psychological environment.

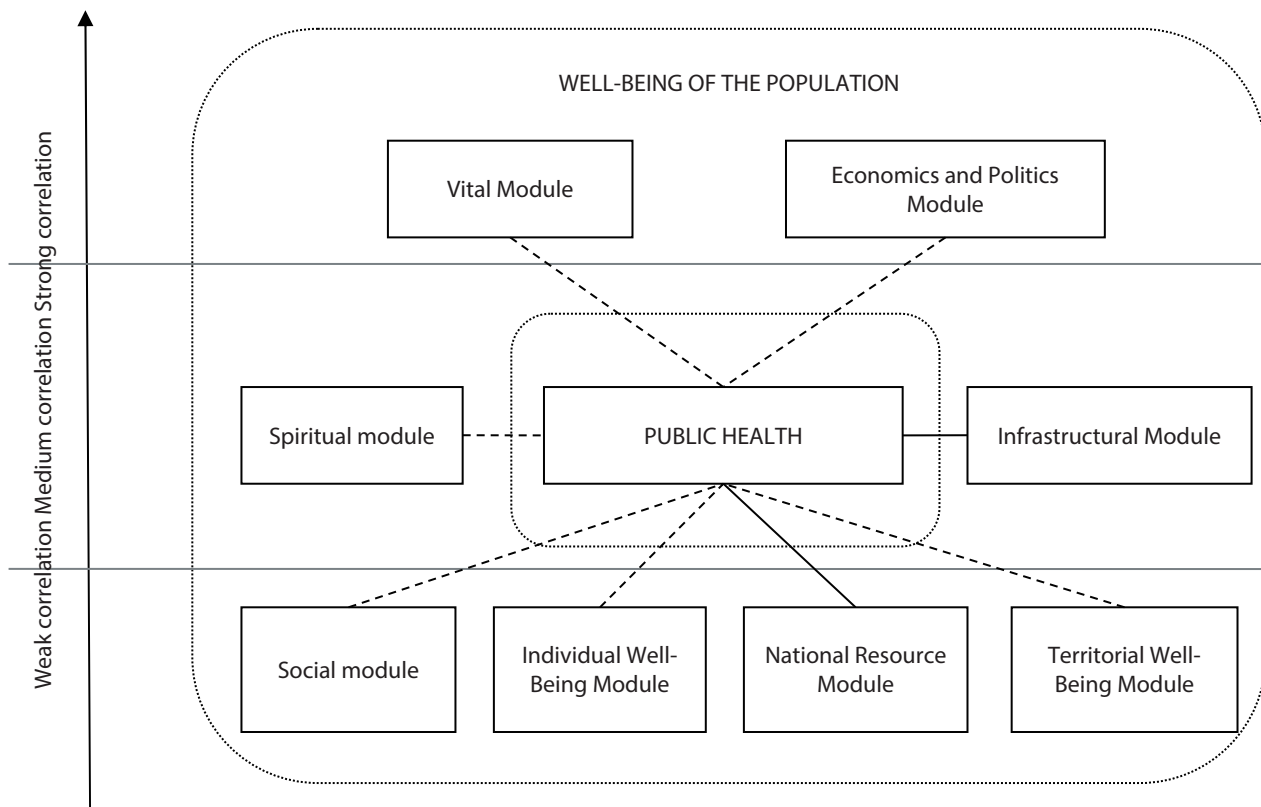
To reveal the dependency between the level of public health and welfare of the population of the regions of Russia, it is necessary to establish the structure of the concept of “welfare” as such. The question on the content of this category still remains open. Depending on the aspect which is taken into consideration in the assessment of welfare, one can distinguish between 4 groups of theories [26]:

- 1) the theories that regard welfare as a result of justice in the distribution of the outcomes of economic activity;
- 2) theories defining welfare as a result of efficient placement and use of resources: work equipment and materials and supplies, as well as the labour force;
- 3) theories regarding welfare as the synthesis of efficient placement (use) of the resources and fair distribution of the outcome of the economic activity;
- 4) complex theories of welfare.

On the basis of the analysis of the existing methodological tools for the assessment of the well-being level [27] it is possible to conclude that the most reliable results can be obtained by the use of integrated approaches which take into consideration a lot of spheres of human life and the development of the territory. In this connection, the authors developed a methodology for the diagnostics of welfare. Welfare is assessed in the perspective of an individual and the territory of residence as the interconnected and inseparable spheres of the functioning of the region’s economy. The authors’ interpretation of the category, which takes into consideration the most comprehensive list of components that are listed in the research papers as a part of the welfare structure of an individual and a territory of residence, is represented in the table.

In accordance with the structure of well-being which is presented in the table, we have selected eight indicators, determined the nature and strength of the correlation between these indicators and the socio-psychological potential of the constituent territories of the Russian Federation on the basis of the construction of correlation matrices. The analysis of the results revealed a number of regularities and relationships between the well-being of the population of the region and the public health (Fig. 5).

The level of abortions is selected as one of the indicators of the spiritual module. Apart from the medical and reproductive aspects of this indicator, the number of abortions also reflects the moral, religious, and ethical points of reference of an individual. On January 1, 2012, the amendment to the Federal Law No. 323-FZ On Public Health Protection in the Russian Federation came into force,



Note: the firm line shows the direct connection, while the dotted line is for inverse connection.

Fig. 5. The correlation relationship between the level of public health and well-being of population of the Russian regions

Table

The characteristic of the modules for the diagnostics of the welfare of an individual and the territory

Module	Contents
<i>Diagnostics of an individual welfare</i>	
Spiritual	The module evaluates the most subjective aspect of the welfare category — the level of moral, religious, intellectual, and aesthetic development of a person
Vital	The module allows to take into consideration such crucial conditions as the availability of food, environmental and epidemiological well-being, as well as the level of violent crimes, in the generalized assessment of the well-being level
Social	The module assesses the achieved level of the social well-being, which is expressed in the provision of healthcare for the population, as well as the acceptable living conditions, availability of social services, sufficient income and the unemployment rate reduced to the lowest possible level
Module of well-being (I)	The module allows to evaluate whether the population has adequate financial resources, housing and other property; these factors must be taken into consideration because when they are at the satisfactory level, it contributes to the margin of safety in the context of the crisis phenomena
<i>The diagnostics of the welfare of a territory</i>	
National Resource Module	The module assesses not only the resource potential of a territory, but also the level of national security and the migration problems
Economics and Politics Module	The module includes the extent of the state participation in the economic life of the country, as well as the provision of security by fighting crime and shadow economy
Infrastructural Module	The module takes into consideration the efficiency of the connections between the individual types of infrastructure of a territory: transport, market, information, utilities infrastructure, etc.
Module of well-being (II)	The module assesses the efficiency of economy of the territory as a whole, its budget funded sector and the level of development of the market of high-tech products

Source: [27].

introducing “the days of silence”, a waiting period for women who decided to have an abortion. This amendment appeared largely due to the activity of the representatives of the Russian orthodox church who insisted on stricter measures aimed against abortions [28]. In 2000–2013, the rate of abortions in Russia went down sharply, from 169 to 50 abortions per 100 childbirth, i.e., by 70.4 %. But the prevalence of abortions before 2000 was so high that even after the decrease it remains significant. Although the number of abortions significantly depends on the material welfare of the population [29–30], the number of abortions did not grow in 2009, in the context of the economic crisis development. Such a trend can partly be explained by the effectiveness of the preventive measures against abortions, including the implementation of the measures included in the President’s Mother and Child Initiative for 2007–2011 [31]. Nevertheless, Russia is characterized by a significant regional differentiation of the rates of registered abortions. The level of abortions is observed to increase from the South-West to the North-East of the country: from the lowest in the North Caucasus Federal District and the Central Federal District to the lowest in the Far East Federal District [32]. The correlational analysis performed shows the medium level of inverse relationship between the level of socio-psychological potential of the constituent entities of the Russian Federation and the number of abortions in such entities.

Strong inverse correlation was revealed between the level of socio-psychological potential and one of the indicators of the vital module — the death rate among the employable age population, especially males. During the years of the economic development, the mortality rate in Russia demonstrated a positive downward trend, but even after this decrease it remains high. In 2013, every fourth deceased person was of employable age (25,6 %). The mortality among male population of employable age is sensitive to changes in the external situation, and in 2008 this indicator went up. The quality of life is the primary factor of the enhancement of health and the death rate reduction, because it creates the conditions (habitat) for the development of all the other factors of the growth of the general and sanitary culture, health care, improvement of the environment. It is the improvement of the quality of life that makes it possible to reduce stress related to unemployment and economic insecurity. At the same time, no significant statistical dependency was revealed between the level of socio-psychological potential and the indicators of asocial behaviour (alcoholism or drug addiction, which are the key reasons of mortality in the employable age [33–34]).

Close correlation was not revealed between the indicators of the social module — average per capita income of the population and the level of the socio-psychological potential of the constituent territories of the Russian Federation. However, in 2009, during the crisis, the positive dynamics of the revenues declined, and the correlation was somewhat reinforced. The global financial crisis resulted in the appearance of the new forms of poverty, which affected the public sentiment. The concept of “poverty” became differentiated into the poverty of the “weak” and the poverty of the “strong”. The poverty of the “weak” is the social poverty, which requires special attention in any society. The poverty of the “strong” emerges when working people lose the possibility to achieve the accepted level of well-being based on their occupational earnings [35].

Low correlation was found between the level of the potential and the indicator of the amenities in the residential facilities, which characterizes an individual’s welfare module. Compared to the inertia of the value of the total area of resident buildings with modern amenities, it is particularly noticeable how fast the housing sphere is being developed in the republics of Kalmykia, Dagestan, Ingushetia, Altai, the Sakhalin Region, and the Nenets Autonomous Okrug, where due to the starting low effect the total area of resident facilities with modern amenities per capita more than doubled in 2000–2013 (compared to the average Russian growth rate of 136 %).

In accordance with the human capital theory, migration of population is based on the rational comparison by a migrant of the quality of life available in the home country and its possible change in the area of possible residence and the assessment of the expected advantage from such relocation. In other words, unsatisfactory quality of life in the region creates the negative migration balance there. However, no significant statistical dependency was revealed between the public health indicator and the migration activity of the population, which characterizes the National Resource Module.

The socio-psychological potential of the population affects the economic and political situation in the society. As a result of the correlation analysis, close inverse connection was found between the level of the potential of the region and the crime rate. It is worth mentioning the growth of the crime rate in almost all the constituent entities in 2002–2006 and some decrease of this indicator starting from 2007. However, there is no obvious pattern of the correlations between the crime rate and the

level of socio-economic development in a particular region. For example, in 2013 the level of crime in the Sakhalin Region, Primorsky Territory, and Trans-Baikal Territory exceeded 2,500 cases per 100,000 people.

The density of highways was selected to be the key indicator within the infrastructural module. The mobility of the population, opportunity to travel, availability of transport services, safety and eco-friendliness of transport are the prerequisites of the high quality of life in the contemporary society [36-37]. The Central Federal District, North Caucasus Federal District and the Volga Federal District are characterized by a sufficiently developed network of highways; in 2013, the density of motorways with solid surface was over 200 km per 1000 km², which is primarily due to the geographical position.

No clear dependency was revealed between the components of the socio-psychological potential and the welfare of the territory, which is confirmed by the correlational analysis of the connection between the index of the socio-psychological potential and the level of gross interregional product of the subjects of the Russian Federation. The high financial potential of the subjects of the Russian Federation as such does not guarantee a high socio-psychological potential. In terms of their gross regional product, the leaders of the rating of the socio-psychological potential came in the following order: Khanty-Mansi Autonomous District is in the 19th place, Moscow is in the 23rd, Saint-Petersburg has the 34th position. In particular, this shows the lack of balance between the economic and the social spheres of these constituent territories of the Russian Federation. But it does not mean that the financial factors are not to be taken into consideration in the examination of the improvement of the socio-psychological potential of an individual or territory; especially important is the strategy of the allocation of the available financial resources. Better financial possibilities in the social sphere enjoyed by some constituent entities of the Russian Federation brought about relatively high values of the social/psychological potential.

Conclusions

The findings of the research into the correlation between the welfare of the population of Russia and the public health show that material well-being and the financial resources of a region do not guarantee a favorable environment and satisfactory social general health. More significant correlations have been revealed with the welfare modules which determine the population's subjective perception of its habitat. Therefore, the improvement of the quality of life for broad strata of the population (primarily of the socially vulnerable groups), as well as the decrease of the negative impact of the socio-economic determinants (first of all, unemployment and income inequality) will reduce stress and insecurity in the future. These results are confirmed by numerous sociological surveys. In particular, the study "Happiness Index of the Russian Cities" revealed that the level of material well-being was not the main determining factor of the socio-psychological status of the Russian citizens. The important criteria includes such indicators as environmental conditions, security level and the feeling that things are changing for the better. Grozny holds the first position in the rating, Moscow comes only 52nd, Saint Petersburg is in the 16th line, while Yekaterinburg is the 49th².

The research into public health reveals the trends of the society development and the level of adaptation of population to the existing socio-economic and political conditions in Russia. It is especially important because today the Russian society once again found itself on the verge of the transformations which will determine the vector of its further development. The surge of patriotic attitudes in the society observed in the first half of 2014 (Russia's successful performance as the host country of the Olympic Games, the Crimea's joining the Russian Federation), the situation related to the hostilities in Ukraine, introduction of sanctions against the Russian Federation will affect public health and, therefore, the well-being of the population of the Russian regions.

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² The survey "Happiness Index of the Russian Cities" was conducted by the Monitoring agency NewsEffector and the Regional Research Fund "The Regions of Russia" [38].

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Information about the authors

Kuklin Aleksandr Anatolyevich (Yekaterinburg, Russia) — Doctor of Economics, Professor, Head of the Centre for Economic Security, Institute of Economics of the Ural Branch of the Russian Academy of Sciences (29, Moskovskaya St., Yekaterinburg, 620014, Russia, e-mail: alexkuklin49@mail.ru).

Vasilyeva Yelena Vitalyevna (Yekaterinburg, Russia) — PhD in Economics, Research Assistant, Institute of Economics, Ural Branch of the Russian Academy of Sciences (29, Moskovskaya St., Yekaterinburg, 620014, Russia, e-mail: sa840sha@mail.ru).